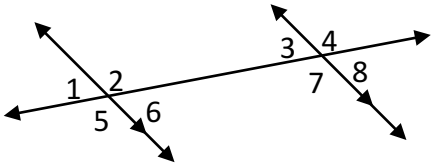
Name:_____Date:_____

Test 4 Review

Use the figure below to complete problems #1-5.



1. Identify two pairs of alternate interior angles.

∠2 & ∠7 ∠6 & ∠3

2. Identify two pairs of alternate exterior angles.

∠1 & ∠8 ∠4 & ∠5

3. Identify two pairs of consecutive interior angles.

∠2 & ∠3 ∠6 & ∠7

4. Identify four pairs of corresponding angles.

∠1 & ∠3 ∠2 & ∠4 ∠5 & ∠7
∠6 & ∠8

5. Identify four pairs of vertical angles.

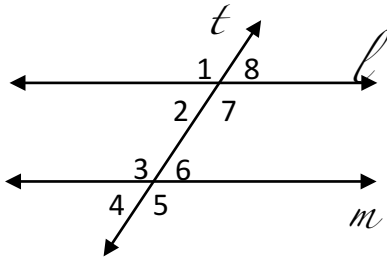
∠1 & ∠6

∠2 & ∠5

∠3 & ∠8

∠4 & ∠7

6. In the accompanying diagram, line ℓ is parallel to line m, and line t is a transversal. Name a pair of supplementary angles.



∠1 & ∠8

∠2 & ∠7

∠3 & ∠6

∠2 & ∠3

∠7 & ∠6

∠1 & ∠4

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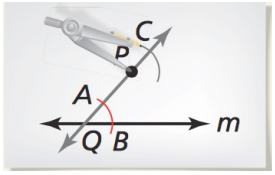
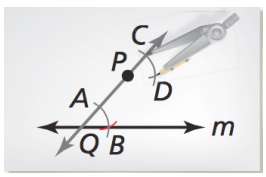
7. The pictures below illustrate the steps to construct a parallel line.

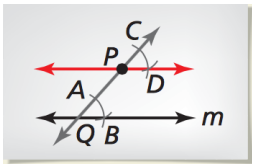
1



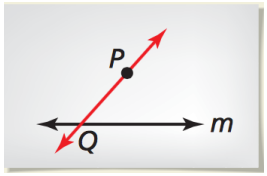
2



3



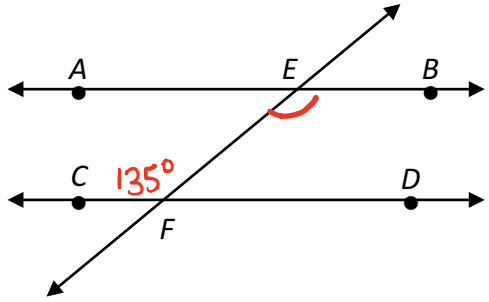
4



In what order should they be placed to construct a line parallel to a given line?

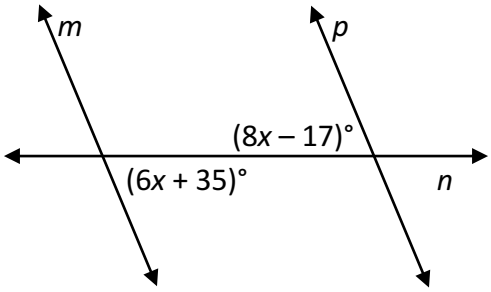
4, 1, 2, 3

8. In the figure below, parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are cut by transversal $\overleftrightarrow{EF}$. If m∠*CFE* = 135°, what is m∠*FEB*?



∠FEB = 135

9. Line *n* intersects line *m* and *p*, forming the angles shown in the diagram below. Which value of *x* would prove *m* ∥ *p*?



$8x - 17 = 6x + 35$

$-6x \quad\quad -6x$

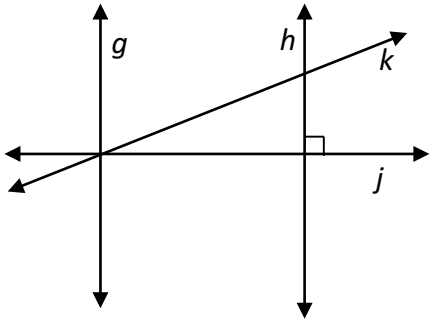
$2x - 17 = 35$

$+17 \quad\quad +17$

$\frac{2x}{2} = \frac{52}{2}$

$x = 26$

10. Line *g* is parallel to line *h* in the figure shown below. Which statement about the lines is true?



A) Line *h* is parallel to line *k*.
B) Line *j* is perpendicular to line *g*.
C) Line *k* is parallel to line *j*.
D) Line *g* is perpendicular to line *h*.

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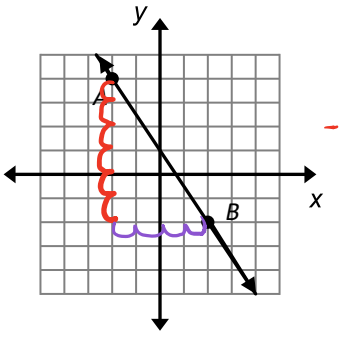
11. If the slope of a straight line is **undefined**, the graph of this line may pass through Quadrants

A) I and II B) I and III
C) I and IV D) II and IV

12. In the diagram shown, what is the slope of $\overleftrightarrow{AB}$?



$-\frac{6}{4} = -\frac{3}{2}$

13. Which is an equation of the line that passes through the point (7, –3) and has a slope of –2?

$m = -2 \quad x = 7 \quad y = -3$

$y = mx + b$
$-3 = -2(7) + b$
$-3 = -14 + b$
$+14 \quad +14$
$11 = b$

$y = -2x + 11$

14. Write the equation of a line that is parallel to the line whose equation is $y = \frac{2}{3}x + 1$ and goes through the point (3, 1).

$m = \frac{2}{3} \quad x = 3 \quad y = 1$

$y = mx + b$
$1 = \frac{2}{3}(3) + b$
$1 = 2 + b$
$-2 \quad -2$
$-1 = b$

$y = \frac{2}{3}x - 1$

15. Which equation represents a line that is parallel to the line whose equation is

$\frac{3y}{3} = \frac{-2x}{3} + \frac{6}{3}$

$y = -\frac{2}{3}x + 2$

$m = -\frac{2}{3}$

16. Which is an equation of a line perpendicular to the line that goes through the point (3, –1) and whose equati`on is $y = -3x + 7$?

$m = -3 \quad \text{perp } m = \frac{1}{3}$

$x = 3 \quad y = -1$

$y = mx + b$
$-1 = \frac{1}{3}(3) + b$
$-1 = 1 + b$
$-1 \quad -1$
$-2 = b$

$y = \frac{1}{3}x - 2$

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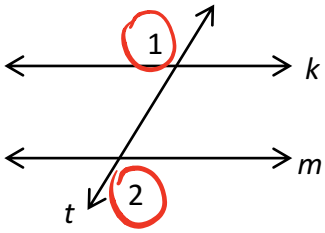
17. Fill in the blank with the appropriate reason.

Given: k ∥ m
Prove: ∠1 ≅ ∠2



Statements	Reasons
1. k ∥ m	1. Given
2. ∠1 ≅ ∠2	2. _____

A) Alternate interior angles theorem
B) Same-side interior angles theorem
C) Corresponding angles postulate
D) Alternate exterior angles theorem

18. What is the slope of the line whose equation is $5x-4y=10$?

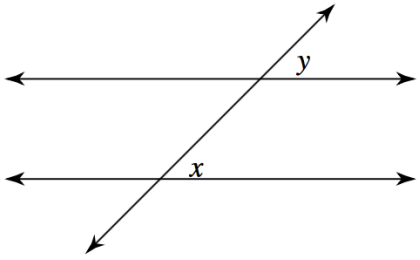
$-5x \quad -5x$

$\frac{-4y}{-4} = \frac{-5x}{-4} + \frac{10}{-4}$

$y = \frac{5}{4}x - \frac{5}{2}$

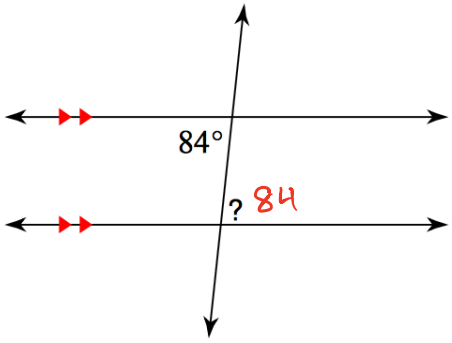
$m = \frac{5}{4}$

19. Identify this pair of angles as corresponding, alternate interior, alternate exterior, or consecutive interior.



Corresponding

20. Find the measure of the indicated angle.



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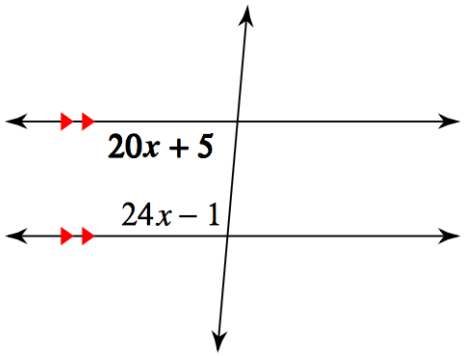
21. Solve for x.



$20x+5+24x-1=180$

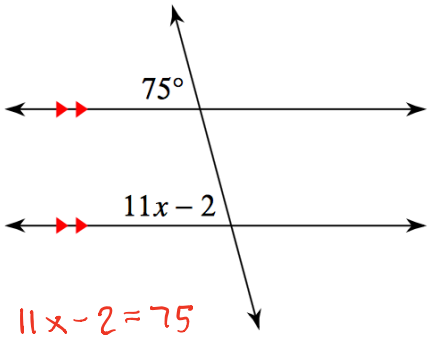
$44x+4=180$

$-4 \quad -4$

$\frac{44x}{44}=\frac{176}{44}$

$x=4$

22. Solve for x.



$11x-2=75$

$+2 \quad +2$

$\frac{11x}{11}=\frac{77}{11}$

$x=7$

23. Find the slope.

$$y=-\frac{17}{38}x-4$$

$m=\frac{-17}{38}$

24. Find the slope of the line through the pair of points.

$(-15,-4),(10,14)$

$x_1 \; y_1 \quad x_2 \; y_2$

$\frac{y_2-y_1}{x_2-x_1}=\frac{14--4}{10--15}=\frac{18}{25}$

25. Tell whether the lines through the given points are parallel, perpendicular, or neither. Justify your answer.

Line 1: $(2.5,-2),(9.5,12)$

Line 2: $(-4,-2),(8,-4)$

Line 1: $\frac{12--2}{9.5-2.5}=\frac{14}{7}=2$

neither

Line 2: $\frac{-4--2}{8--4}=\frac{-2}{12}=-\frac{1}{6}$

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For 26 & 27, write the slope-intercept form of the equation of the line described.

26. through: (1, -3), parallel to $y = 4x + 3$

$m = 4 \quad x = 1 \quad y = -3$

$y = mx + b$

$-3 = 4(1) + b$

$-3 = 4 + b$

$-4 \quad -4$

$-7 = b$

$y = 4x - 7$

27. through: (2, -4), perpendicular to $y = \frac{1}{6}x + 2$

$m = \frac{1}{6}$ perp $m = -\frac{6}{1} = -6$

$x = 2 \quad y = -4$

$y = mx + b$

$-4 = -6(2) + b$

$-4 = -12 + b$

$+12 \quad +12$

$8 = b$

$y = -6x + 8$